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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,420	04/05/2005	Andrei Radulescu	NL03 0771 US	6715
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EXAMINER KIM, EDWARD J				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/530,420

**Applicant(s)**

RADULESCU ET AL.

**Examiner**

EDWARD J. KIM

**Art Unit**

2455

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-9 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

**DETAILED ACTION**

1. This office action is in response to the Request for Continued Examination (RCE) filed on 02/22/2010.
2. Claims 1, and 3-9 are pending in this office action. Claim 2 has been cancelled by the Applicant. Claims 1, 7, and 9 have been amended. No new claims have been added.

***Response to Amendment***

3. The Examiner withdraws previous 35 USC 112 first and second paragraph rejections regarding claim 9, and presents a new 35 USC 112 second paragraph rejection regarding the amended claim 9.

***Response to Arguments***

4. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 4, 8, and 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites, “mapping a range of multicast addresses onto at least the first and second subset ranges of addresses”, wherein the parent claim, claim 1, recites “... a facility for mapping at least one multicast address onto at least two further addresses in a range of addresses of the second electronic modules, *the range of addresses comprises a first subset range of addresses and a second subset range of addresses...*”. According to the claim language, claim 4 is repeating the limitation already claimed in the parent claim, claim 1, wherein claim 4 fails to further limit the parent claim. It is unclear whether claim 4 is referring to something different. Therefore, claim 4 is indefinite to what the exact claimed subject matter is.

Claim 8 recites, “the means for replicating further comprises a facility for mapping at least one first multicast address onto two or more addresses associated with a single one of the second electronic modules”, wherein the parent claim 1 recites, “mapping at least one multicast address onto at least two further addresses in a range of addresses of the second electronic modules...”. According to the claim language, claim 8 is repeating the limitation already claimed in the parent claim, claim 1, wherein claim 8 fails to further limit the parent claim. It is unclear whether claim 8 is referring to something different. Therefore, claim 8 is indefinite to what the exact claimed subject matter is.

Amended claim 9 now recites, “...facility for mapping...is arranged for further mapping the at least one multicast address onto at least one range of addresses that in turn is mapped to the plurality of second electronic modules”, wherein the parent claim, claim 1, recites, “...and a facility for mapping at least one multicast address onto at least two further addresses in a range of addresses of the second electronic modules...”. According to the claim language, claim 9 is repeating the limitation already claimed in the parent claim, claim 1, wherein claim 9 fails to

further limit the parent claim. It is unclear whether claim 9 is referring to something different. Therefore, claim 9 is indefinite to what the exact claimed subject matter is.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1, 3- 9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Computer programs claimed as computer listings per se, software per se, i.e., the descriptions or expressions of the programs are not physical "things". They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized.

M.P.E.P. 2601.1 Section I states, "Since a computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process and USPTO personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, as nonstatutory functional descriptive material."

Claims 1, 3-9 do not provide a statutory embodiment needed to realize the program's functionality. As such, the claims are not limited to statutory subject matter and are therefore non-statutory.

Regarding claim 7, the claim does not qualify as statutory processes since the claims recite purely method steps, which can be implemented in software per se. The claim fails to

recite any of the other statutory classes (thing or product) nor identifies the apparatus that accomplishes the method steps.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 3, 4, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ballardie et al. ("Core Based Trees (CBT) An Architecture for Scalable Inter-Domain Multicast Routing", ACM SIGCOMM Computer Comm Review, vol.23 Issue 4 pg.85-95, October 1993), hereinafter referred to as Ballardie, in view of Michael Norton (Muticast Architectures, O'Reilly Network, 08/10/2010), hereinafter referred to as Norton, further in view of O'Toole et al. (US Patent #7,117,273 B1), hereinafter referred to as O'Toole.

Regarding claim 1, Ballardie discloses a first electronic module and a plurality of second electronic modules, arranged to communicate to each other via the network, the network is arranged to establish transactions between a first electronic module and at least two second electronic modules, the circuit comprises (Ballardie, Abstract, fig.1, pg.88 section 5.CBT-The New Architecture, right column first paragraph. Ballardie discloses multicasting wherein a core node replicates the multicast message to other non-core nodes, wherein the non-core routers further replicates the received multicast message to other non-core nodes, and so on.):

means for replicating a single request from the first electronic module into at least two replicated requests and for sending each of the at least two replicated requests to the respective second electronic modules, said means for replicating comprises a facility for mapping at least one multicast address onto at least two further addresses in a range of addresses of the second electronic modules, the range of addresses comprises a first subset range of addresses and a second subset range of addresses, the number of addresses in each of the first and second subset ranges of addresses is greater than a single address, wherein a first one of the second electronic modules is associated with the first subset range of addresses such that any request sent to any of the first subset range of address is sent to the first one of the second electronic modules and a second one of the second electronic modules is associated with the second subset range of addresses such that any request sent to any of the second subset range of address is sent to the second one of the second electronic modules

Ballardie discloses system and method of multicasting on a network, wherein a core node receives a multicast message and replicates the multicast message to other non-core nodes, wherein the non-core routers further replicates the received multicast message to other non-core nodes, and so on. Ballardie discloses a method of replicating a received multicast message for multicasting to another set of nodes, which thereon replicates the received multicast message to another set of nodes (Ballardie, Abstract, fig.1, pg.88 section 5.CBT-The New Architecture, right column first paragraph.). Although the addressing scheme is not explicitly disclosed by Ballardie, it is understood that multicasting is performed by limiting the multicast to a subset of addresses, unlike broadcasting. Norton, explains the addressing scheme of multicasting in a network in more detail on how the multicast addressing is limited to a subset, so groups of nodes

will receive the multicast message, not all nodes (Norton, pg2. IP Multicast address, Layer 2 MAC Addresses). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ballardie with those of Norton, to implement a system wherein multicast message to a first subset of addresses are replicated into a second subset of addresses and so forth. One would have been motivated to do so since Ballardie discloses how to replicate a multicast message to a first subset of nodes, wherein the subset of nodes receives and replicates multicast messages into a further second subset of nodes, and so forth, wherein Norton discloses in detail, the addressing aspect in a multicasting scheme.

However, Ballardie and Norton fail to explicitly disclose an integrated circuit comprising a network comprising the above network, and that the address is from an address space. O'Toole discloses method and apparatus for maintaining a map of node relationships for a network, wherein the system utilizes multicasting (O'Toole, Abstract, col.17 ln.50- col.18 ln.63). O'Toole further discloses that such networks that employs multicasting can be implemented on Integrated Circuits (IC) (O'Toole , col.6 ln.1-15.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ballardie and Norton, with those of O'Toole to implement the system disclosed by Ballardie and Norton on an Integrated Circuit, wherein the address will be from an address space, not an IP address. One would have been motivated to do so since such multicasting network topologies/systems were copied implemented ICs for efficiency in an IC system, as evidenced by O'Toole.

Regarding claim 3, Ballardie disclosed the limitations as described in claim 1, and further discloses wherein the means for replicating further comprises a facility for mapping at least one



first multicast address onto at least one second multicast address, provided that the second multicast address is not mapped onto the first multicast address (Ballardie, Abstract, fig.1, pg.88 section 5.CBT-The New Architecture, right column first paragraph. Ballardie discloses multicasting wherein a core node replicates the multicast message to a first set of non-core nodes, wherein the first set of non-core routers further replicates the received multicast message to other second set of non-core nodes, and so on, wherein the second set does not replicate the multicast message to the first set, and so forth. Refer to combination of Ballardie and Norton explained in claim 1 regarding multicast addresses.)

Regarding claim 4, Ballardie disclosed the limitations as described in claim 1, and further discloses, wherein the means for replicating further comprises a facility for mapping a range of multicast addresses onto at least the first and second subset ranges of addresses (refer to rejection of claim 1 and 35 USC 112 second paragraph rejection above.)

Regarding claim 6, Ballardie disclosed the limitations, as described in claim 1, and further discloses, wherein means for replicating comprises a network interface circuit for performing the replication of the single request into replicated requests, and wherein the network interface circuit sends the replicated requests to the second electronic modules (Ballardie, Abstract, fig.1, pg.88 section 5.CBT-The New Architecture, right column first paragraph.) (refer to rejection 1 regarding implementation of the system on an IC).

Regarding claim 7, Ballardie discloses a method for sending requests in a network, a first electronic module and a plurality of second electronic modules, which communicate with each other via the network, the method further establishes transactions between the first electronic module and at least two second electronic modules (Ballardie, Abstract, fig.1, pg.88 section 5.CBT-The New Architecture, right column first paragraph. Ballardie discloses multicasting wherein a core node replicates the multicast message to other non-core nodes, wherein the non-core routers further replicates the received multicast message to other non-core nodes, and so on.), the method comprising the acts of:

replicating a single request from the first electronic module into at least two replicated requests and sending each of the replicated requests to the respective second electronic modules, mapping at least one multicast address onto at least two further addresses in a range of addresses, wherein the range of addresses comprises a first subset range of addresses and a second subset range of addresses of the second electronic modules, the number of addresses in each of the first and second subset ranges of addresses is greater than a single address, wherein a first one of the second electronic modules is associated with the first subset range of addresses such that any request sent to any of the first subset range of address is sent to the first one of the second electronic modules and a second one of the second electronic modules is associated with the second subset range of addresses such that any request sent to any of the second subset range of address is sent to the second one of the second electronic modules.

Ballardie discloses system and method of multicasting on a network, wherein a core node receives a multicast message and replicates the multicast message to other non-core nodes, wherein the non-core routers further replicates the received multicast message to other non-core

nodes, and so on. Ballardie discloses a method of replicating a received multicast message for multicasting to another set of nodes, which thereon replicates the received multicast message to another set of nodes (Ballardie, Abstract, fig.1, pg.88 section 5.CBT-The New Architecture, right column first paragraph.). Although the addressing scheme is not explicitly disclosed by Ballardie, it is understood that multicasting is performed by limiting the multicast to a subset of addresses, unlike broadcasting. Norton, explains the addressing scheme of multicasting in a network in more detail on how the multicast addressing is limited to a subset, so groups of nodes will receive the multicast message, not all nodes (Norton, pg2. IP Multicast address, Layer 2 MAC Addresses). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ballardie with those of Norton, to implement a system wherein multicast message to a first subset of addresses are replicated into a second subset of addresses and so forth. One would have been motivated to do so since Ballardie discloses how to replicate a multicast message to a first subset of nodes, wherein the subset of nodes receives and replicates multicast messages into a further second subset of nodes, and so forth, wherein Norton discloses in detail, the addressing aspect in a multicasting scheme.

However, Ballardie and Norton fail to explicitly disclose an integrated circuit comprising a network comprising the above network, and that the address is from an address space. O'Toole discloses method and apparatus for maintaining a map of node relationships for a network, wherein the system utilizes multicasting (O'Toole, Abstract, col.17 ln.50- col.18 ln.63). O'Toole further discloses that such networks that employs multicasting can be implemented on Integrated Circuits (IC) (O'Toole , col.6 ln.1-15.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ballardie and Norton, with

those of O'Toole to implement the system disclosed by Ballardie and Norton on an Integrated Circuit, wherein the address will be from an address space, not an IP address. One would have been motivated to do so since such multicasting network topologies/systems were copied implemented ICs for efficiency in an IC system, as evidenced by O'Toole.

Regarding claim 8, Ballardie disclosed the limitations, as described in claim 1, and further discloses wherein the means for replicating further comprises a facility for mapping at least one first multicast address onto two or more addresses associated with a single one of the second electronic modules (refer to rejection of claim 1 and 35 USC 112 second paragraph rejection above.).

Regarding claim 9, Ballardie disclosed the limitations, as described in claim 1, and further discloses, wherein the facility for mapping that at least one multicast address onto at least two further addresses in the range of addresses is arranged for further mapping the at least one multicast address onto at least one of addresses that in turn is mapped to the plurality of second electronic modules (refer to rejection of claim 1 and 35 USC 112 second paragraph rejection above.).

11. Claim 5 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Ballardie et al. ("Core Based Trees (CBT) An Architecture for Scalable Inter-Domain Multicast Routing", ACM SIGCOMM Computer Comm Review, vol.23 Issue 4 pg.85-95, October 1993), hereinafter referred to as Ballardie, in view of Michael Norton (Multicast Architectures, O'Reilly Network,

08/10/2010), hereinafter referred to as Norton, further in view of O'Toole et al. (US Patent #7,117,273 B1), hereinafter referred to as O'Toole, further in view of Shobatake (US Patent #6,772,219 B1).

Regarding claim 5, Ballardie disclosed the limitations as described in claim 1, however, fails to explicitly disclose wherein the single request comprises a connection identifier for identifying a multicast connection, wherein the multicast connection includes at least one of guaranteed throughput, latency and jitter, ordered delivery, and flow control. Shobatake discloses message relay device for constructing a ultra-high speed message relaying system, which utilizes multicast connections and connection identifiers (Shobatake, Abstract, col.2 ln.30-39, col.64 ln.25-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Ballardie, with those of Shobatake to utilize multicast connections that guaranteed throughput, or latency and jitter, or ordered delivery, or flow control, and connection identifiers. One would have been motivated to do so, since Shobatake discloses a method and system that provides a solution for the difficulty in realized a high throughput network, especially in a network providing multicast connections (Shobatake, col.2 ln.30-39).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDWARD J. KIM whose telephone number is (571)270-3228. The examiner can normally be reached on Monday - Friday 7:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edward J Kim/  
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